

FIG. 1

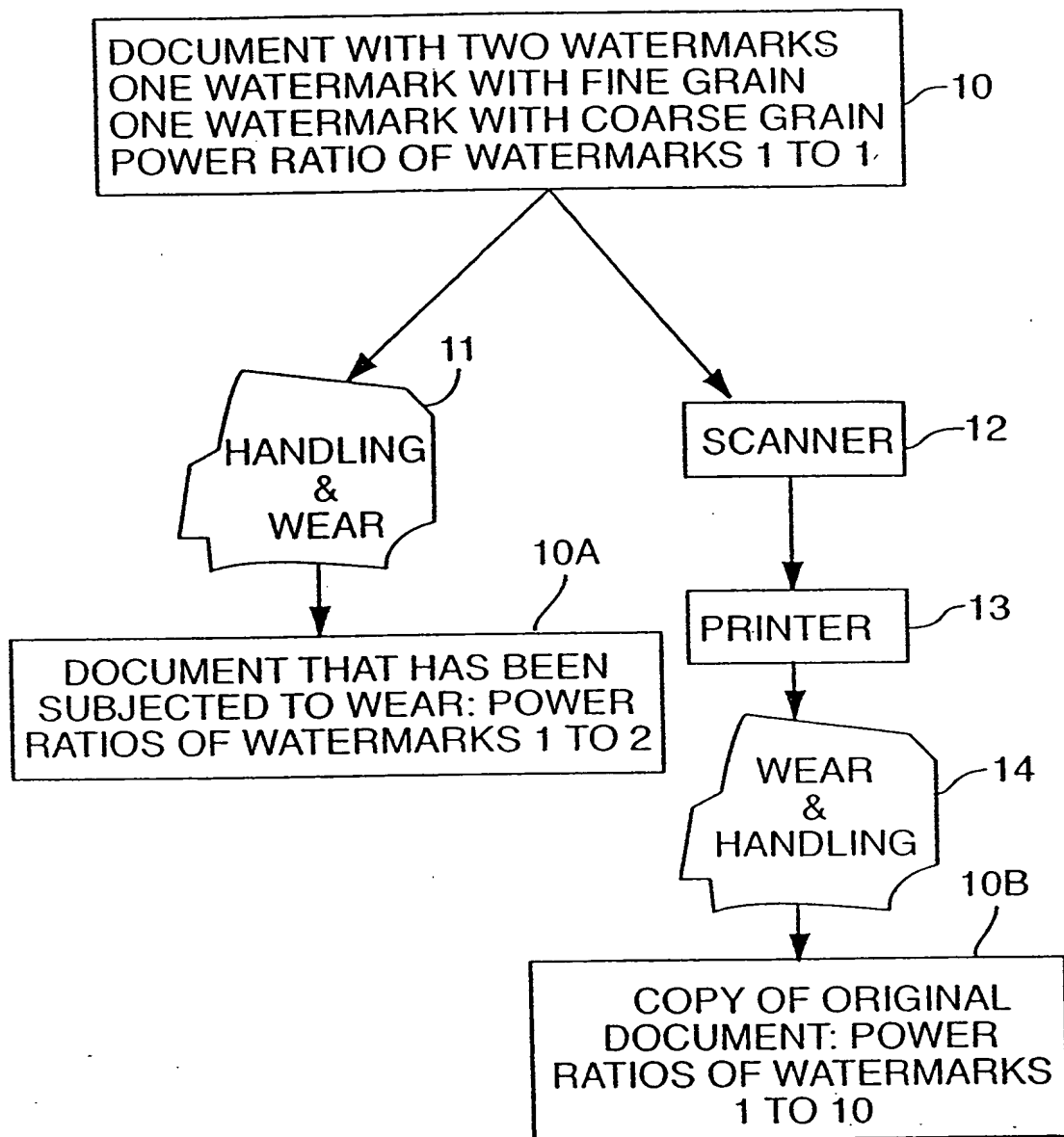


FIG. 2A

WATERMARK WITH A FINE GRAIN
(EACH BLOCK OF PIXELS IS 3X3)

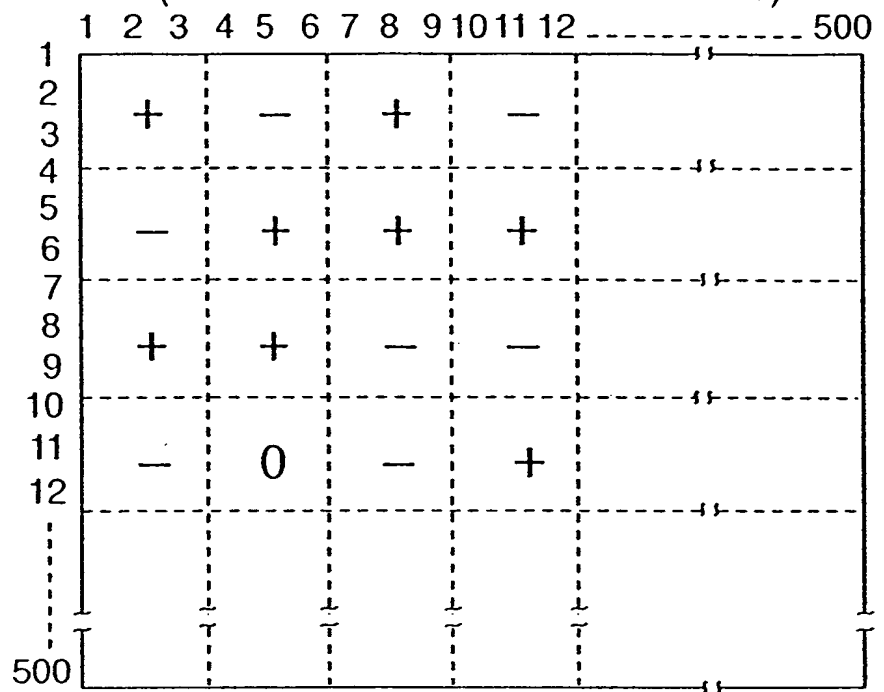
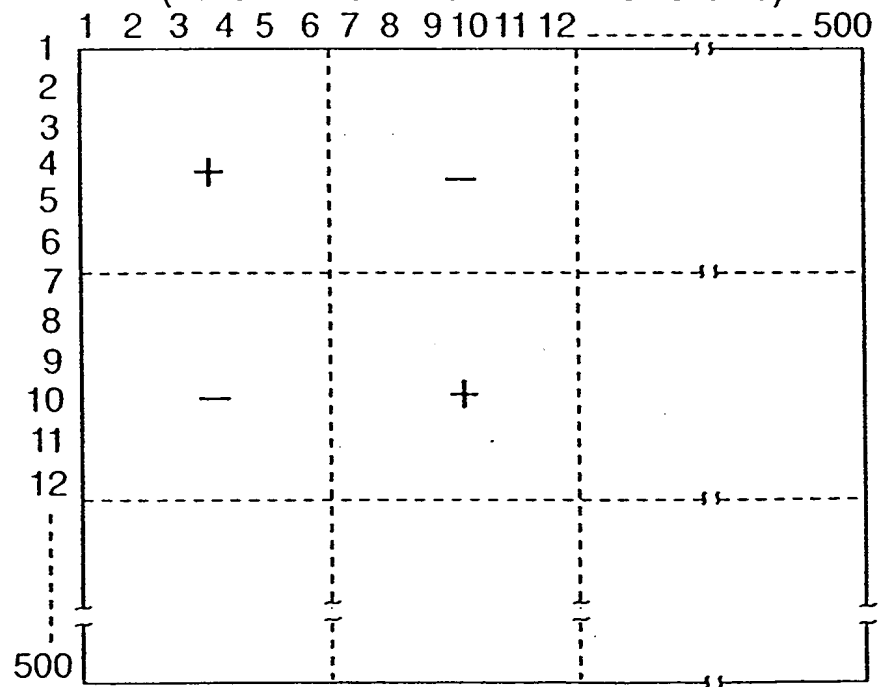


FIG. 2B

WATERMARK WITH A COARSE GRAIN
(EACH BLOCK OF PIXELS IS 6X6)



19

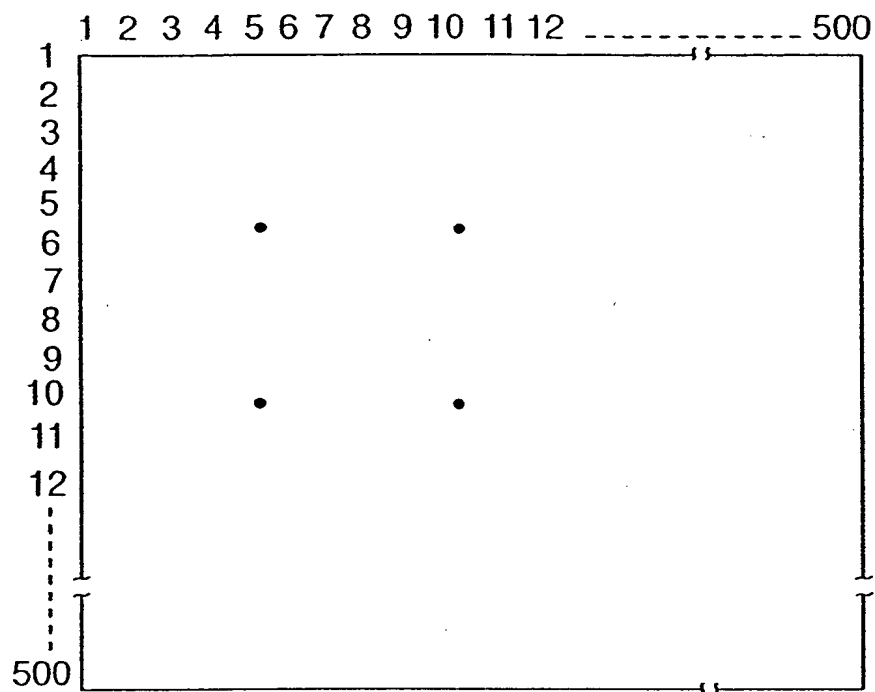
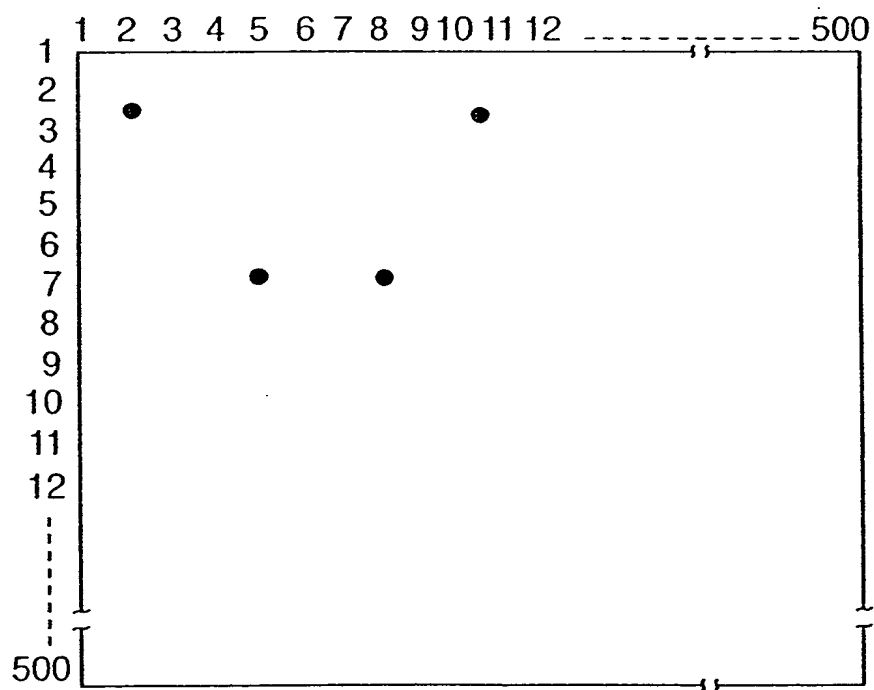


FIG. 3B GEOMETRICALLY RANDOM ASSIGNMENT OF PIXELS TO EACH BIT



- (1) $RGB \rightarrow HSI$
- (2) FIRST WATERMARK
 $HSI + WMI \Delta \xrightarrow{T} RGB1$
- (3) SECOND WATERMARK
 $HSI + \text{BIASED } WM2 \Delta \rightarrow RGB2$
- (4) FINAL IMAGE $(RGB1 + RGB2) / 2 = RGBF$

FIG. 4

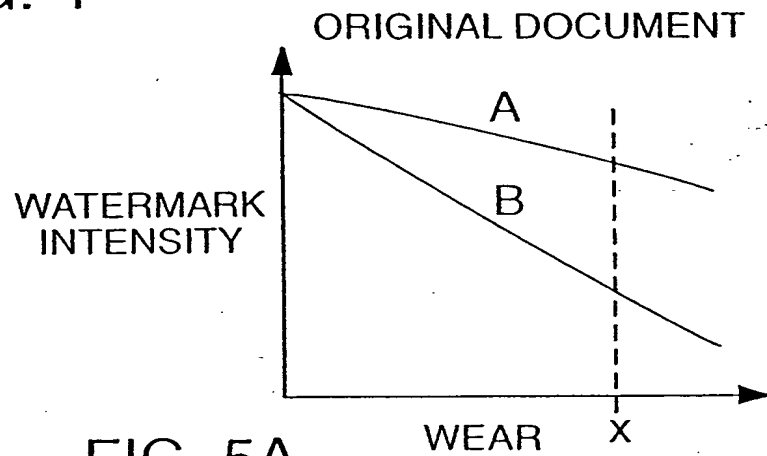


FIG. 5A

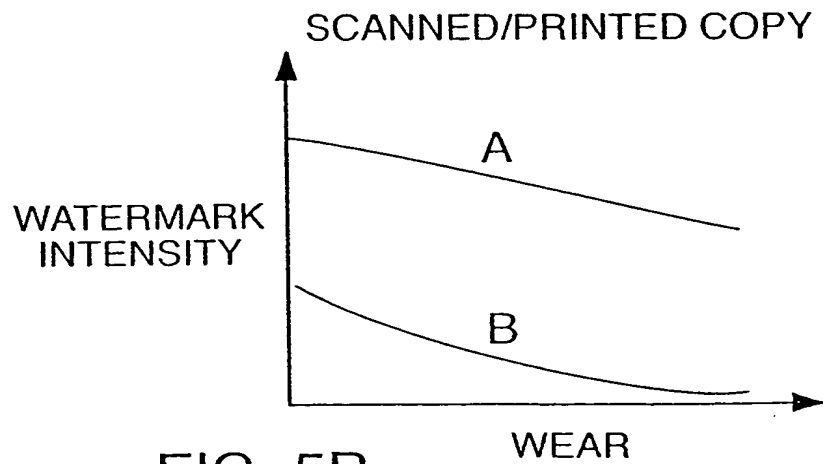


FIG. 5B